



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,905	01/30/2004	Hyung-Soo Kim	1793.1116	5693
21171	7590	09/15/2005		
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			EXAMINER NELSON, VIVIAN HSU	
			ART UNIT 2851	PAPER NUMBER

DATE MAILED: 09/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/766,905

Applicant(s)

KIM, HYUNG-SOO

Examiner

Vivian Nelson

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,3-10, and 12-15 is/are rejected.
- 7) ☒ Claim(s) 2, 11, and 16 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-7, 12, and 14-15 rejected under 35 U.S.C. 102(b) as being unpatentable by Iizuka (patent #6,643,044).

1. Iizuka teaches for claim 1, a light source 101 (column 5 line 1); photosensitive drums 109 and 109' (photoconductive, col. 5 line 21); a polygon mirror 105 (col. 5 line 7); and an image focusing system for forming spots on the photosensitive drums 109 and 109'. The image focusing system, which is placed between the polygon mirror 105 and the drums 109 and 109', consists of scanning lenses 108 and 108' that are spaced a predetermined distance from the optical axes 110 and 110' of the center of the light source (col. 5 lines 13-25 and Figure 3).

Similarly as in claim 12, a light source 101 emitting a beam of light 111 and 111'; a light deflector (polygon mirror 105) rotating about a rotational axis 105a and deflecting a beam of light at a predetermined angle; a reflector (mirrors 106, 106', 107, and 107') adjustably defining an optical axis 110 and 110' (that receives a beam of light and reflects it into an optical lens); and an optical lens (scanning lens 108 and 108') offset a predetermined distance from the optical axis 110 and 110' are all taught in Iizuka (see above).

2. The light source portion of Iizuka's invention describes the light beams 111 and 111' (emitted from the light source 101) as being "obliquely incident" (claim 3) and simply "incident" (claim 4) on the polygon mirror 105 at a predetermined angle in a sub-scanning direction in col. 5 lines 6-11. Oblique is defined as "having a slanting or sloping direction, course, or position; inclined". This is shown by Iizuka in any of Figs. 3, 7, 11, and 15 – i.e. the light beams 111 and 111' is shown to be at an incline with respect to the tilted axis of the polygon mirror 105. And Iizuka uses the term "auxiliary scanning" to describe the sub-scanning direction; auxiliary is defined as "functioning as a subordinate; secondary".

3. The light source portion of Iizuka further describes a collimating lens 102 and a cylindrical lens 104 to collimate and converge the light beams 111 and 111', respectively, in a sub-scanning direction (claims 5, 14, and 15 – treatment of "one light deflector" or polygon mirror 105 above) in col. 5 lines 2-4 and Figs. 3, 7, 11, and 15.

4. It is shown in Figs. 3, 7, 11, and 15 of Iizuka that the light beams 111 and 111' are incident on the polygon mirror 105 through the collimating lens 102 and cylindrical lens 104 (claim 6).

5. As disclosed by Iizuka in col. 6 lines 5-21, col. 7 lines 1-5, and Figs. 3, 7, 11, and 15, the reflecting mirrors 106, 106', 107, 107' change the distances between the light beams 111 and 111' deflected by the polygon mirror 105 (claim 7). In this instance, Iizuka, though not explicitly shown in the drawings, could use the invention in a fanning array in the vertical direction to create a plurality of beam spots on the drum(s). This configuration would allow a change in distances between the light beams in a vertical direction when the first and second separation angles θ_1 and θ_2 , respectively, were varied.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arimoto et al. in view of Demeritt et al. (patent #5,274,502).

6. Arimoto teaches an asymmetric aspheric surface in a scanning system but uses only glass for the lens. Demeritt teaches molded lenses using both glass and plastic (col. 1 lines 25-41). It would have been obvious to one of ordinary skill at the time of the invention to make an asymmetrical aspheric lens out of either plastic or glass. (See also Kato patent #5,966,161 paragraph 13.)

Claims 9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iizuka (patent #6,643,044) in view of Plotkin et al. (patent #6,222,663).

7. Iizuka has a rotating light deflector 105; a light source 101 emitting a plurality of beams that are incident on the light deflector 105 and produce images on a plurality of photosensitive medium surfaces 109 and 109'; and a first plurality of mirrors 106 and 106', which deflects the light from the light deflector 105 through a plurality of optical lenses 108 and 108' to the plurality of photosensitive medium surfaces 109 and 109', where the center of the optical lenses 108 and 108' is offset from the plurality of axes 108a and 108' of the first plurality of mirrors

Art Unit: 2851

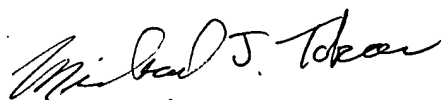
106 and 106'. Specifically, Iizuka does not have a second plurality of mirrors 107 and 107' to receive the light from the first plurality of mirrors 106 and 106' and to further deflect that light through the optical lenses 108 and 108' to the plurality of photosensitive medium surfaces 109 and 109'.

Plotkin teaches the second plurality of mirrors 107 and 107' that receives light from the first plurality of mirrors 106 and 106' in the form of a plurality of reflective surfaces and beam splitters/combiners (Figs. 3 and 4). It would be obvious to one of ordinary skill in the art to use Plotkin in view of Iizuka to increase the speed and resolution of printing, while maintaining the compactness of the apparatus.

Allowable Subject Matter

Claims 2, 11, and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Michael Tokar
Supervisory Patent Examiner
Technology Center 2800